# 2009 – 2010 STEM Grant Abstracts

**Blair-Taylor - WeDo Robotics** **Grade Level Served: 2-4**

WeDo Robotics, an entry-level robotics platform, will be presented to second, third and fourth grade students in a classroom setting. Students will build and create LEGO models featuring working motors and sensors, are programmable using LEGO Education WeDo Software. In combination with the Robotics Activity Pack students will explore a series of cross-curricular theme-based activities while developing their independent and group learning skills in science, technology, engineering and mathematics as well as language and literacy.

**DeForest** **Grade Level Served: 9-12**

DeForest Area High School's proposal includes a formal career assessment for students from targeted populations and hosting a seven-month series of Career Workshops. These workshops will highlight a different Career Cluster each month. Within these Career Clusters, STEM careers will be spotlighted. Each workshop will be seventy minutes, and will involve post-secondary education and industry representatives to inform students on career options. There will be hands-on activities to engage students' interest. This will be an "invitation only" event -- open to students who have identified a pathway within the highlighted career cluster.

**Ellsworth** **Grade Level Served: 6-9**

This proposal is designed to address the gap in Ellsworth students' preparedness for college level coursework in math and science, and thereby increase students' opportunities for success in math, science, engineering, and technology related careers. To encourage student interest in math, science, technology, and engineering courses, this project proposes adding two alternative energy investigations to a required Science 9 course, utilizing PASCO - Environmental Science materials and equipment; expanding a $6^{th}$ grade Robotics curriculum in a required exploratory Tech Ed class; adding an extension of the robotics investigations into the $8^{th}$ grade Tech Ed class by having students collaborate in Science 8 and Tech Ed to design and build a robotic driven device; and extend collaborations with community businesses, the local Economic Development Council, and area post-secondary institutions to promote careers in areas of "green" energy sources and technologies.

**Elmbrook** **Grade Level Served: 8-10**

This project will provide females the opportunity to experience engineering through the lens of a helping profession. Tenth and eleventh grade girls will go to Marquette University to experience a variety of hands on activities in engineering through their Engineering outreach program. The second part of the project would have the high school girls that participated in the program at the university teach the same activities they experienced at Marquette University to eight grade girls. This will also provide a view of possibilities in science, math and engineering in the high school and beyond, especially for females.

**Green Bay** **Grade Level Served: 2-5**

The proposed After School STEM Club will engage over 100 Green Bay Area Public School students from five elementary schools that enroll large populations of students who are traditionally under-represented in STEM coursework and career fields. In partnership with the Boys & Girls Club of Green Bay, daily After School STEM Club activities will engage students after school at Danz, Fort Howard, Jefferson, Keller, and Tank Elementary Schools. Students will develop interests in pursuing STEM coursework and career opportunities based upon positive learning experiences and hands-on exploration using evidence-based PCS Edventures and PBS Design Squad curricula and materials.

**Lac du Flambeau** **Grade Level Served: 6-8**

The proposed project will be located at the Lac Du Flambeau Public School located on the Lac du Flambeau Indian Reservation. The Robotics in the World of Work Project' will involve assembly and creativity of different robotics by students, grades 6-8, participating in the after school student organization SkillsUSA program. This project will be a collaborative effort with the Lac du Flambeau Simpson Electric Plant owned by the Lac du Flambeau Band of Lake Superior Chippewa Indians. This project will be scheduled for six weeks in the Fall and six weeks in the Winter. The objectives of the project will be to describe how new technologies have replaced, outmoded, or created jobs; describe the increasing role of robots in our daily lives and in manufacturing; recognize how microelectronics are being used for technology progression; and explain the recent growth of the tertiary [service industry] sector.

**Milwaukee Academy of Science** **Grade Level Served: 3-8**

Math H.E.L.P. is a joint venture of The Milwaukee Academy of Science, (K4 to 12 independent charter school with a largely minority population) and Marquette University Engineering Outreach. Math H.E.L.P. is a cross grade level, tutorial math enrichment project focused on enabling third to fifth grade students to develop a greater proficiency in number operations while providing a math review opportunity for students in grades six to eight. The program provides urban, underepresented students with foundational skills to increase their potential for success in STEM career choices.

**Milwaukee Public Schools** **Grade Level Served: 9-12**

The proposal seeks to expand on a pilot aquaponics projected initiated at the School for Urban Planning and Architecture (SUPAR) in Spring 2009. The system is designed to grow plants (primarily salad greens) and fish in a closed-loop system, in which bacteria break down ammonia excreted by the fish and make it available as nitrogen to fertilize the plants. The students are using the system to learn about basic biological and chemical processes as well as the links between science and society. Students are also learning about the scientific method, including experimentation and careful record-keeping.

**New London** **Grade Level Served: 4-5**

The School District of New London recognizes that it has a critical need to ensure opportunities that include rigor and relevance for students in science, technology,

engineering and mathematics (STEM). To do this, we propose that each fourth and fifth grade science teacher be trained and equipped with resources from the Einstein Project. Training will be held in conjunction with the Einstein Academy in Green Bay. This professional development opportunity is a 'train the trainer' model; which is meant to immediately improve student opportunities and sustain efforts to provide ongoing training.

**Oconto Falls** **Grade Level Served: K-8**

Oconto Falls encourages underrepressented populations to participate in STEM classes. This summer school Academy will initiate six new STEM classes concentrating on engineering and science. Classes that have proven to be of interest to high school students will now be offered as introductory programs at the middle school. Topics include Geocaching, CSI Biotechnology, Ooy Gooy Science, Bridge Building, Mousetrap Cars, Lego Engineering and Electric Circuits.

**Plymouth** **Grade Level Served: 1-5**

Plymouth is committed to providing strong education in STEM areas. The district proposes to inaugurate a summer Science and Engineering Adventure Week with hands-on, project-based instructional units that engage elementary students in a manner appropriate to their age and experience. Ninety students in grades 1-5 will embark on a weeklong adventure rotating through the topics in multi-age groups.

**Sheboygan** **Grade Level Served: 6-8**

The purpose of this grant is to support relationship building and STEM encouragement among the district's three middle schools' staff and students who are in one or more of the following categories: female, minority ethnicity, economically disabled and those who are enrolled in ELL programming. This plan also includes purchasing Fisher Teknics kits. Design & Modeling and Automation & Robotics Project Lead The Way courses will be implemented at all 3 middle schools in the fall of 2009.

**Winter** **Grade Level Served: 9-12**

The Winter School District, along with partner Lac Courte Oreilles Ojibwa School, proposes to offer high school summer STEM courses to engage students in an active learning process resulting in increased proficiency. We propose to offer a three tiered approach including a Survey of Science course, a Practical Math course and a course in the Principles of Technology. Students will take this series of courses and teachers will collaborate to integrate skills within each area from all three. Teaching strategies will be incorporated to actively engage students in the learning process opening the door to further STEM course study in the future.